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ABSTRACT

The determination of whether or not the Miller Analogies Test (MAT) is a valid screening device to use with a culturally diverse populace was examined. The study was conducted at New Mexico State University (NMSU) using 2 sample groups. Sample A consisted of 560 Anglos and 101 Mexican Americans tested by the NMSU Counseling Center during a 2-year period (1968 to 1970), and sample B consisted of 337 Anglos and 51 Mexican Americans admitted to the graduate school at NMSU during a 3-year period (1967-1970). The 3 hypotheses developed for testing were (1) that there is a significant difference between MAT scores of Anglos and Mexican Americans, (2) that there is a significant difference between earned Grade Point Averages (GPA) of Mexican Americans and Anglos in the first semester of graduate school, and (3) that the correlation of MAT scores and first semester GPAs in graduate school will be significantly different for Mexican Americans and Anglos. The results of the study provided the basis for accepting the first and third hypotheses and for not accepting the second hypothesis. It was strongly indicated that students of Mexican American extraction obtain significantly lower scores on the MAT than do their fellow Anglos, but this fact does not seem to be a detrimental factor which influences performance in class at the graduate level. It was concluded that the MAT does not have much value as a predictive instrument for either group. (PS)

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THE USE OF THE MILLER ANALOGIES TEST AS A SCREENING DEVICE FOR MEXICAN-AMERICAN GRADUATE STUDENTS

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The problem of finding a suitable instrument for use as a screening device for graduate student selection is a difficult one. Institutions of higher learning in the Southwest are confronted with the additional difficulty of evaluating a population which is primarily bi-cultural in nature. At New Mexico State University, approximately 18% of the graduate applicants are of Mexican-American descent. It is, therefore, necessary to investigate any instrument which is adopted by an institution to be used in a selection process for graduate study to determine if it discriminates equally for all groups regardless of cultural differences.

The Miller Analogies Test has become widespread in its use as an instrument of selectivity for graduate school. Although the correlations between the MAT and certain criteria such as grade point average are not always high, the test is used by the majority of graduate schools in the United States. Hountras (1956) states that "The fairly consistent positive correlations obtained have lead to the conclusion that the Miller Analogies Test is one of the best instruments available for the assessment of scholastic aptitude for graduate study." It is the purpose of this study to determine whether or not the Miller Analogies Test (MAT) is a valid screening device to use with a culturally diverse populace.

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METHOD

For purposes of statistical analysis, three hypotheses were developed for testing.

H_1: There is a significant difference between MAT scores of Anglos and Mexican-Americans.

H_2: There is a significant difference between earned GPA's of Mexican-Americans and Anglos in the first semester of graduate school.

H_3: The correlation of MAT scores and first semester GPA's in graduate school will be significantly different for Mexican-Americans and Anglos.

Two samples were used in the study. Sample A, used to test the first Hypothesis, consisted of all persons tested by the New Mexico State University Counseling Center from April 1, 1968 to October 3, 1970. Two observers (counselors in the Counseling Center) divided the listing of 661 names into two groups on the basis of surname derivation. Independently, the observers decided to place 560 persons in the Anglo group and 101 in the Mexican-American group.

Sample B was made up of all students admitted to the graduate school at New Mexico State University during the period from September, 1967 through June, 1970. The Anglo and Mexican-American groups were selected by the same process as the first sample. Fifty-one students were classified as Mexican-American and 337 were placed in the Anglo group. This sample was used for testing Hypothesis II and Hypothesis III.

Means and standard deviations were computed for all groups and tests for significant differences were applied using student's t for unequal n's. Pearson product-moment correlations were used to examine the relationship between first semester grades in graduate school and MAT scores. A test for significant differences in correlation coefficients using Fisher's z transformation was used to determine whether or not both groups were from the same population.

RESULTS

As previously indicated, the research problem was stated in three hypotheses for purposes of statistical analysis. These hypotheses were then accepted or rejected using a t-test with the level of confidence set at .05.

Hypothesis I (There is a significant difference between MAT scores of Anglos and Mexican-Americans) was tested by comparing mean scores for both groups obtained by all individuals who took the MAT from April 1, 1968 to October 3, 1970 regardless of whether or not they subsequently enrolled in graduate school (Sample A).

The Anglo group obtained a mean score of 48.6 with a standard deviation of 17.2 while the Mexican-American group obtained a mean score of 39.7 with a standard deviation of 14.2. The results of the t-test for significant difference yielded a value of 5.63 which was significant at the .001 level of confidence (Table I). Therefore, Hypothesis I was accepted.

TABLE I

PERFORMANCE COMPARISONS OF ANGLOS AND MEXICAN-AMERICANS ON MILLER ANALOGIES TEST

	Anglo n = 560	Mexican-American n = 101	t
$\bar{x}$	48.6	39.7	
s	17.2	14.2	5.63*

* Significant at the .001 level of confidence

Hypothesis II (There is a significant difference between earned GPA's of Mexican-Americans and Anglos in the first semester of graduate school) was tested by analyzing the first semester GPA's of all students of both groups admitted to graduate school at New Mexico State University during the academic years 1967 through 1970 (Sample B).

The mean MAT score for the Anglo group in Sample B was 50.6, while their earned GPA for the first semester was 3.41 on a four-point scale. The Mexican-American group scored 41.1 on the MAT and obtained a first semester GPA of 3.39. Tests for significant differences showed that although the MAT scores for these students were also significantly different at the .001 level, the difference in graduate school performance using first semester grades as a criteria although slightly higher for the Anglo group, was not significant (Table II). Hypothesis II is not accepted.

TABLE II

COMPARISONS OF MAT MEAN SCORE AND FIRST SEMESTER MEAN GPA'S FOR MEXICAN-AMERICANS AND ANGLOS

	Mexican-Americans n = 51	Anglos n = 337	t
$\bar{X}$ MAT	41.1	50.6	3.39*
s	15.2	16.9	
$\bar{X}$ GPA	3.35	3.41	
s	.48	.51	.92

* Significant at the .001 level of confidence

Using the data gathered from Sample B, Hypothesis III (The correlation of MAT scores and first semester GPA's in graduate school will be significantly different for Mexican-Americans and Anglos) was tested by obtaining correlation coefficients between MAT scores and first semester GPA'S for both groups using the Pearson product-moment r. The resulting coefficients were .16 for the Anglo group and a -.06 for the Mexican-American group (Table III). The r for the Anglo group was found to be significant beyond the .05 level; however, the Mexican-American group was not significant. Using Fisher's z transformation, the differences between the r's were tested and found to be significant beyond the .05 level. Hypothesis III was, therefore, accepted.

TABLE III

CORRELATIONS BETWEEN MAT SCORES AND
FIRST SEMESTER GPA FOR MEXICAN-AMERICANS AND ANGLOS

	GPA	MAT	r	z
Anglo n = 337	3.41	50.6	.16*	2.10*
M-A n = 51	3.35	41.1	-.06	

* Significant beyond .05 level of confidence

DISCUSSION

This study examined the obtained scores on the Miller Analogies Test for students classified as either Anglos or Mexican-Americans, and also studied the relationship between these scores and the first semester GPA in graduate school for both groups. From the analysis of the data, it is strongly indicated that students of Mexican-American extraction obtain significantly lower scores on the MAT than do their fellow Anglos. This fact, however, does not seem to be a detrimental factor which influences performance in class at the graduate level as measured by earned GPA. In fact, the MAT does not have much value as a predictive instrument at New Mexico State University for either group. However, as educators attempt to improve the educational level of minority groups and the disadvantaged, other measures of ability must be found.

Considering the difference in mean scores obtained by the two groups (8.9 for applicants and 9.5 for enrolled students) and the low correlations, one wonders how many potentially "good" students may have been discouraged

from pursuing graduate degrees on the basis of low MAT scores.

Success at the graduate level, of course, cannot be measured by GPA alone. As a dependent variable, it has several shortcomings. It can be seen as an index of interaction between student and teacher. In order to predict a student's grade, we should know not only something about his personality and values, but also something about those of the teacher (Lavin, 1965). Chansky (1964) stated the problem succienctly, "The GPA bases its existence upon capricious judgements and volatile criteria." Nevertheless, it is primarily the GPA which, in the long run, determines whether or not a student is awarded the degree.

There are almost as many combinations of prediction criteria for graduate school admission as there are graduate schools. We, as educators, must continue to work toward developing new and meaningful criteria for screening purposes, not only with regard for minority groups and the disadvantaged, but for all. Meanwhile, our present selection criteria must be constantly evaluated so that we may be aware of the inadequacies of those which are presently in use.

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